AMENDMENTS TO THE CLAIMS:

No amendments are being made to the claims at this time.

<u>IN RESPONSE TO THE OFFICE ACTION:</u>

The Examiner has rejected the claims of the instant application as follows:

> *Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Newman (6,212,763) in view of Coyle Sr. (4,552,041).*

July 8, 2003 Office Action at 2.

In view of the comments set forth below, Applicant respectfully requests that the Examiner withdraw the rejection of claims 1-20 as being unpatentable over Newman in view of Coyle Sr.

<u>COMMENTS:</u>

Claim 1 of the instant application claims a monitor for tongs that undergoes a rotational action to provide a tightening action, comprising, in part, an electrical signal that includes a **learning mode** in which a target tightness value is determined based on an input signal. This learning mode is generally described in the instant specification as follows:

> Monitor 10 includes a learning mode that enables the monitor to adapt to various tongs and operating conditions. After temporarily operating in the learning mode, monitor 10 shifts to a monitoring mode. Readings taken during the monitoring mode are compared to those taken during the learning mode to determine whether any changes occur during the tightening operation.

Application Page 5, lines 21-25.

A more detailed description of the learning mode of the present invention can be found between pages 6, line 8 and page 9, line 25. In sum, this text teaches that an electrical circuit adapted to receive an input signal and produce an output signal based on the input signal. The input signal is provided by a sensor that measures rotational action or tightening action of the tong. Examples of such sensors are listed between page 6, line 25, and page 7, line 3.

As described in the specification, one or more sensors monitor various actions of the tongs while the tongs are used to tighten two elongated members into a coupling and provides input signals corresponding to the measured values. The learning mode of the electrical circuit interprets these measured values to determine the tightness of a first connection, simultaneously calculating a tightness value, Tn. Once an operator is satisfied with how the a connection was

tightened, the operator can then activate the learning mode of the monitor, in which a setpoint SP is assigned the most recent value of Tn. A Tmin and a Tmax are then defined as the SP plus or minus a TOL tolerance value. The TOL tolerance value specifies an allowable tolerance range for the target tightness value. At this point, the monitor has learned what the appropriate target tightness is for this set of elongated members on this particular day.

After learning what the appropriate target tightness value is for the current operating conditions, control transfers from learning mode to monitoring mode, wherein the monitor is able to determine if each individual connection is made up correctly. This cycle continues for as long as the operator desires. At any time, however, the operator may choose to reset the target tightness setpoint SP to another Tn value by simply reactivating the learn input. The method described herein allows for the tong monitor to adapt to various conditions, including the wide varitey of elongated members that are used in the field, the various composition and condition of those elongated members, temperature, wear on parts, and thread condition of the elongated members.

Conversely, neither Newman nor Coyle Sr. teach a learning mode, but instead use predetermined tightness values to determine if connections are made up correctly. In other words, in neither application does a monitor learn the appropriate target tightness value for a given set of conditions. For example, as disclosed many times in Newman, the tongs always tighten the elongated members to a predetermined tightness or predetermined rotational value. See Newman, col. 6, ll. 56-63; col. 7, l. 66 to col. 8, ll. 5; col. 8, ll. 18-34. In each instance, the torque or rotational values are compared to a predetermined tightness value. The tightness value is never learned by the tong monitor. This point was recognized by the Examiner on page 2 of the instant office action.

However, Coyle Sr. does not provide this missing limitation. Coyle Sr. describes its process as follows:

> It is therefore an object of the invention to provide the industry with a power tongs control unit capable of reliably limiting applied tongs torque at a **predetermined level**, maintaining the variations from the desired torque from

> joint to joint to a very small figure, and making a graphic permanent record of makeup torque while avoiding the disadvantages of the prior art.

Coyle Sr. at Col. 1, ll. 63 to col. 2, l. 1. Coyle Sr. further states that "At a predetermined threshold tongs torque, a switch is actuated by contact with a Bourdon tube connected to the transducer output closure of the switch causing the solenoid actuator to open the shunt valve and thereby halt operation of the tongs." Coyle Sr., Abstract. Thus, Coyle Sr. expressly discloses that the tongs are halted at a predetermined torque level, and therefore the control system of Coyle Sr. does not learn a correct target tightness value. The passage cited by the Examiner at column 3, lines 63-68 does not supply this missing limitation. That passage reads that a conventional pressure gage is connected to the hydraulic pressure transducer output. Coyle Sr. notes that it is the face of the gage that must be calibrated to indicate the torque being applied by the tongs. This simply means that the gage reading is adjusted to correspond with the transducer output, so that the readings are consistent. The gage is not learning the correct target tightness value, and more importantly, the electronic control system of Coyle Sr. does not learn the correct target tightness value either.

Both Coyle Sr. and Newman teach ceasing tightening operations when a measured variable reaches a predetermined level. Conversely, the tong monitor of the present invention has to learn what the target tightness value is before regular tightening operations can continue. It is this learning mode that distinguishes the present claims from the disclosures of both Newman and Coyle Sr.

Each of the three independent claims of the present invention claim that the monitor learn, or determine, a target tightness value. Because this element is not disclosed in the combination of Newman and Coyle Sr., each of the independent claims, as well as all the dependent claims, are patentable over the Newman and Coyle Sr. combination. Applicant therefore requests that the Examiner withdraw the rejection of claims 1-20 and indicate the allowance of the claims in the next action from the office.

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While no fees are believed to be due at this time, the undersigned representative requests any extension of time that may be deemed necessary to further the prosecution of this application.

The undersigned representative authorizes the Commissioner to charge any additional fees under 37 C.F.R. 1.16 or 1.17 that may be required, or credit any overpayment, to Deposit Account No. 01-2508, referencing Order No. 13526.0031.NPUS00.

In order to facilitate the resolution of any issues or questions presented by this paper, the Examiner should directly contact the undersigned by phone to further the discussion.

Respectfully submitted,

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Date: 10/8/03